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Interaction and space in the virtual world of *Second Life*

Abstract

Interaction takes place in a spatial context and in many ways is influenced or shaped by this context. Interaction also discursively creates space. There are buildings and rooms that are designed to facilitate specific forms of interaction as for instance in the case of lecture theatres, seminar rooms or assembly halls. The architecture of such rooms, including not only their shape but also the arrangement of furniture and technical equipment, provides affordances that facilitate and structure lectures, class-room discussions and debates. Moreover, interactants position themselves in space to establish co-presence and joint attention. In online virtual worlds, the spatial context of interaction has to be graphically recreated. The various aspects of this context, however, are selectively re-created. Some of them serve similar functions as in physical life in that they facilitate or structure interaction while others merely serve as flags to indicate the type of interaction the participants are engaged in. In this paper we analyze the recreation of interactional architecture and spatial positioning in one specific virtual world, i.e. *Second Life*, in order to explore the ways in which the interactants deal with the differences between physical life and virtual life.

Keywords:

Interaction, space, interactional architecture, *Second Life*, virtual worlds, computer-mediated communication

1. Introduction

Interaction and space are interrelated in multiple ways both in physical settings and in virtual online settings. Interaction takes place in space – in real-world architectural or natural surroundings, or in artificially created surroundings of computer applications. Furthermore, space is discursively created in the process of communication. In physical life there are many purpose built spaces that facilitate specific forms of communicative interaction. A lecture theatre, for instance, provides seating for an audience, a position for a lecturer where he or she can be easily seen and heard, a blackboard or a screen for the visual display of additional information and so on. A doctor's surgery is purpose built to enable the interaction between a doctor and a patient. There are chairs for the comfort of the interactants, situated in a way that makes communication easy and guarantees privacy. Some recent research has started to dissect such affordances of physical settings and to study their impact on the communication that takes place within these settings. Hausendorf and Schmitt (2013) use the term “interactional architecture” to refer to the architectural organization of space which enables or supports certain types of communicative interaction (see also Hausendorf 2012, 2013; Plüss and Walti 2014). In artificially created virtual worlds such settings and their affordances are often imitated

and re-created even if they are not necessary for interaction in the virtual world to take place. In the present study we want to show that this analytical perspective is not only relevant for the physical context but also for settings that are established in virtual space, as for instance in a virtual world such as *Second Life*.

Virtual worlds are computer-generated environments that rely on graphics implying three-dimensionality and that can be accessed via virtual bodies called ‘avatars’. Within these worlds, physical spaces are virtually recreated in the form of landscapes, buildings or objects. The three-dimensional space is visually rendered on the (two-dimensional) computer screen. Through such recreations, not only spatial structures that we know from physical life are transferred to online spaces but also the communicative activities and some of the affordances that go along with these spaces. In *Second Life*, for instance, users have created lecture theatres, seminar rooms, cafés or clubs that are modeled after physical life and where lectures, seminars, poetry readings or parties take place. When avatars congregate in *Second Life* in order to take part in such communicative activities, they orient themselves in the quasi three-dimensional space of the two-dimensional computer screen in ways that are partly inherited from the traditional ways of orientation in physical space and partly established in entirely new ways. It turns out that only some of the affordances from physical life are reconstructed while others are ignored.

In this paper we will explore the interrelation between interaction and space in a virtual environment and in particular the ways in which constructed virtual space (virtual interactional architecture) facilitates, structures and flags specific forms of interaction, and the way in which language users organize space through their interaction. Which communicative affordances of the physical world are re-created in the virtual world? And what purpose do they serve in the virtual world? Are they needed to enable or facilitate a specific form of interaction? Do they help to structure the interaction in some way? Or do they merely serve as iconic flags that signal the type of interaction that can take place in a particular space?

As a case study we will use the virtual world of *Second Life*, a computer-driven, simulated three-dimensional virtual world inhabited by graphic avatars (see e.g. Boellstorff 2008; Berger 2012; LaPensée and Lewis 2014; Martin 2014; Abdullah 2015; Locher et al. 2015). Its current popularity no longer reaches the levels it enjoyed in the early years of its existence in the 2000s. But it still claims over 45 million residents and more than 39,000 residents online at the time (<http://gridsurvey.com>, accessed 2016-03-03 21:35:02 SLT). It serves as a useful testing ground because it is user driven, in the sense that it is largely the users themselves who determine the make up of the communicative settings (landscapes, buildings etc.) and the types of communication that take place in these settings.

In the following section, we will briefly introduce important aspects of *Second Life*. In section 3, we review some of the literature on interaction and space that is relevant for our purposes. Section 4 will then focus on the specific data that were collected for this study, and it will briefly introduce the methodology of our analyses. In section 5, we focus on the ways in which architecture facilitates, structures and flags specific forms of interaction in virtual life (interactional architecture) and how interaction itself creates interactional spaces. Our case study will show the ways in which interactants jointly enact a lecture and moderated discussion in an improvised setting and thereby turn this setting into a makeshift lecture theatre.

2. The virtual world *Second Life*

Second Life is an online virtual world, which in many respects resembles Massively Multiplayer Online Role Playing Games (MMORPGs), but it differs from these in that it is not a game in the normal sense of the word (see Bennerstedt and Ivarsson 2010: 203). There are no tasks or objectives that are determined by the platform, and there are no temporal cycles with beginnings and ends that are typical of many games. The platform is continually accessible, and users are free to explore it as they wish. It is accessed via virtual embodiments (avatars) that take three-dimensional shapes (see Abdullah 2015). These may be anthropomorphic, zoological shapes, fantasy shapes or shapes of everyday objects. It is useful to make a terminological distinction between the physical users who sit at their computers, the virtual identities they assume within *Second Life* called residents, and the shapes that embody the residents in the virtual world, i.e. the avatars. Some users strive to give their avatars an appearance that imitates their own. Boellstorff (2008) provides a striking example. According to the reproduction on the book cover, the avatar Tom Bukowski that he used for his ethnographic exploration of *Second Life* bears an uncanny resemblance to the author of the book. Generally, however, the physical appearance of avatars bears little or no resemblance to their users (see Frohwein et al. 2008 for a detailed study of the ways in which the appearance of avatars influences the way in which they are approached by other residents).

The avatars are controlled by mouse-clicks or via the arrow keys on the keyboard. They can move back and forth, sideways, up and down. They can jump, run, fly or be transported via a process that is called teleporting, which takes the avatar almost instantaneously from one location in *Second Life* to any other place in this world (see Yus 2011: chapter 4; Boellstorff 2008; Berger 2012; Locher et al. 2015). The avatars are part of the interface through which users sitting at their computers can interact and communicate with each other. *Second Life* offers a whole range of interactional affordances for the users to communicate with each other. Some of them are language-based and only loosely connected to the avatar if at all, others rely directly on the avatar for various forms of non-verbal communication. In Locher et al. (2015: 36), we summarize these affordances as follows (see also, Antonijevic 2008; Boellstorff 2008; Hodge et al. 2011; Pojanapunya and Jaroenkitboworn, 2011; Boellstorff et al., 2012; LaPensée and Lewis 2014):

Language-based affordances

- Text-based chat
- Instant Messaging (IM)
- Voice-over IP
- Notecards
- Action scripts
- Billboards, road signs, etc.

Avatar-based affordances

- Avatar appearance

- Avatar movements
- Avatar gestures (e.g. laughing, nodding, clapping)

Open chat, voice over IP and instant messaging are the main communication options (see also Biebighäuser and Marques-Schäfer 2009). All these communicative affordances are technically restricted to a greater or lesser extent. For instance, voice-over IP is not available everywhere, text-based chat depends on the typing skills of the user, and avatar gestures depend on a small repertoire of system-provided actions, such as laughing, nodding or clapping, which have to be activated by specific mouse clicks or key strokes. The gesture repertoire can be individually extended by purchasing or creating additional gestures (see Martin 2014: 295). With respect to spatial orientation, it is of interest that only avatars within proximity of each other can see the text in the chat window. In other words, *Second Life* here imitates the ability to overhear a conversation in the physical world. It differs in this respect from MMOs, such as *World of Warcraft*, in which open chat refers to a global channel. In the same way, voice over IP can only be heard by users who are close enough to the speaking avatar in the virtual space. Instant messaging allows private conversation that is only accessible to a selected number of residents. In contrast to chat communication, instant messaging does not require residents to be in the same place within *Second Life*.

Since different means of communication are usually simultaneously used, the screen space can be quite cluttered with many windows open (chat, instant messaging, but also notecards, etc.) so that moving the avatar within the virtual space and concentrating on the different open windows can be quite challenging.¹

3. Language and space

The concepts of language and space are intimately connected. Communication happens in spatial contexts, and the spatial context has repercussions on the communication. On the most basic level interactants have to be aware of each other in order to be able to enter into a conversation: “Interaction begins when people perceive that they are being perceived” (Hausendorf 2012: 45, with reference to Luhmann 2005 and Goffman 1964; our translation).² Mondada (2009) focuses on exactly this aspect in her investigation of the minutiae of the pre-beginning and opening sequences of social encounters in public spaces. Her data was recorded in a small French town by two researchers asking for directions from passers-by. She calls these interactions “‘ecologically provoked’, ‘semi-experimental’ itinerary descriptions” (2009: 1980). She describes how participants carefully prepare their interaction by mutual orientation of their bodies and their gaze. They establish a mutual focus of attention and a common interactional space as a pre-condition for social interaction (see also Mondada 2013). In Kendon’s (1990) words interactants orient their bodies in an F-formation system in order to establish a “focused encounter”:

¹ See our discussion of how newbies manage spatial challenges in *Second Life* interaction (Locher et al. 2015).

² German original: “Interaktion fängt damit an, dass wahrgenommen werden kann, dass wahrgenommen wird.” (Hausendorf 2012: 45)

An F-formation arises whenever two or more people sustain a spatial and orientational relationship in which the space between them is one to which they have equal, direct, and exclusive access. Such a pattern can be seen in the circle of the free-standing conversational group. (Kendon 1990: 209)

In virtual worlds, such as *Second Life*, the challenge of becoming aware of each other also has to be solved. It mainly works through an analogy to physical space. Interactants have to be mutually aware of who is involved in a common communication. A virtual world offers a visual manifestation that simulates the situation in physical space. Avatars that are close to each other and facing each other signal the availability for interaction (Goel et al. 2013: 269; see also 5.2). In our own work we have described how interactants in virtual worlds negotiate spatial orientation through the use of deictic elements, and how they use avatar gestures and physical position to negotiate co-presence, joint attention and the willingness to enter into conversation (Locher et al. 2015).

Bennerstedt and Ivarsson (2010: 212), who study interactional patterns in Massive Multiplayer Online Games, such as *World of Warcraft*, provide a categorisation of joint activities, the first two of which are “grouping” and “teaming up”, activities that are very basic for seasoned players but turn out to be complex for newbies or novices. In our earlier work on *Second Life* (Locher et al. 2015), we focus on a group of newbies in their quest for “spatial literacy” (Pearce 2008: 1). Every *Second Life* resident needs to learn how to navigate space in order to participate in this virtual world. We investigated how our newbie student residents navigated the spatial challenges that the virtual world *Second Life* posed them. We identified five nexuses of interest in which we observed our newbies negotiating and navigating the virtual space (Locher et al. 2015: 37):

- (1) establishing co-presence and joint attention;
- (2) negotiating a common perspective;
- (3) navigating and coordinating within virtual space;
- (4) coordinating the different layers of space (the quasi three-dimensional world, the screen interface, and the space of the human in the physical world); and
- (5) the spatial/physical experience of the avatar.

The categories are fuzzy and not mutually exclusive. Navigating space in *Second Life* often means negotiating them simultaneously.

In a wider context, interaction always takes place in a spatial context, and in many cases the spatial context is related to the type of conversations that take place in this location. The architecture of rooms and the arrangement of furniture are often designed to enable or facilitate specific forms of interaction. A church, for instance, is designed for congregations of worshipers listening to a sermon. A council hall is designed for political debates, seminar rooms are designed for class-room activities, interrogation rooms are designed for police interviews and so on. Hausendorf and Schmitt (2013: 3) use the term “interactional architecture” to refer to the various elements of architecture and furniture and equipment which facilitate, imply or evoke specific forms of communication, even if they do not exclude other forms of communication. Architecture is understood heuristically as constructed space (the building itself), designed space (interior

architecture) and furnished space (technical equipment, and decorations). Hausendorf and Schmitt (2013) view space as a communicative resource and architecture as a solution for communicative problems. Their detailed analyses of still pictures of a lecture theatre, a museum and a church aims to reconstruct specific presentations of architecture as solutions to communicative problems.

Many communicative activities take place in rooms that were not purpose built for communicative activities but even in such contexts many aspects of the room may be designed to facilitate communication more generally. In a restaurant or a living room, for instance, the arrangement of chairs and tables generally facilitate communication. The interactants face each other and create a common focus of attention, a point that is particularly salient in cases where communication is occasionally made difficult because tables are too large or noise levels and the acoustics too unfavourable for easy interaction (see in particular Linke 2012 for a perceptive study of the historicity of furniture arrangements and their communicative affordances).

Our use of the term “interactional architecture” follows Hausendorf and Schmitt (2013) and thus it differs from more narrow metaphorical uses of the term. Seedhouse (2004), for instance, uses the term to refer to the organization and structure of institutionalized interactions, such as second language classroom interaction. In his conceptualization the term is restricted to the actual talk and actions of the participants and does not include the wider context of the physical architecture and its facilitating contributions to the institutional interaction.

However, spatial configurations not only enable and facilitate specific forms of communication, but specific forms of communication can also have spatial consequences. Seedhouse (2004: 200) argues that the (metaphorical) architecture of interaction in the second language classroom needs to be “talked into being by the participants”. Not all the talk that occurs in a second language classroom is institutional talk (second language teaching interaction). And, therefore, the interactional architecture of the second language classroom can be talked into or out of being. This is closely connected to our observation that interactants create specific spaces through their interaction. Delivering a lecture, for instance, may not only talk a lecture theatre into being a lecture theatre, but – if this happens outside of a lecture theatre – it may turn that particular space into a temporary lecture theatre (see section 5 below).

4. Data and methodology

In this paper, we use two different sets of data. In section 5.1, we rely on data compiled by Jucker and Berger as part of an explorative study of *Second Life* in 2009 and 2010. In that study, we focused on events that were strongly framed, i.e. that were announced with an event note, that were scheduled with a beginning and ending time and that were moderated by one resident. We collected data on three event types: lectures, discussion events and parties. Berger attended three instances of each event type, recorded the event with a screen recording program (Camtasia), made screenshots and copied the log files from open chat as well as from IM chats (sometimes Berger was asked questions concerning the research) into a Word document (for similar approaches see Kirschner and Williams 2014; Bennerstedt and Ivarsson 2010).

There are some ethical challenges with this data. The avatar that we used for data collection (Debbie Cyberschreiber) had a note in her profile that declared her as a researcher. On the one hand, some residents reacted to that profile entry and asked Debbie questions on her research purpose. So these residents were aware of being observed. On the other hand, we did not declare our research status actively and did not ask for explicit permission for recording or for copying the log files. In the present paper, we use this data for a general discussion of interaction architecture in *Second Life* without reference to specific places or events. Due to the missing official consent, we decided not to reproduce any screenshots or passages of log files from this data. In one case, however, we use a graphic replication to illustrate important features of the settings discussed (section 5.1).

In section 5.2, we rely on data from a follow-up study conducted by Berger (2012). Berger focused on how text-based discussion groups are organized in *Second Life* and how the quasi three-dimensional virtual setting is employed for that purpose. For that study, he collected text, picture and video material on eight discussion events that were held in *Second Life*. For seven of these events, he took screenshots and copied the log files of open chat and IM chats into a Word document. For the eighth event he also made a recording using a screen-recording program (Camtasia).

Berger paid special attention to the ethics of his data collection, taking Boellstorff's (2008) anthropological approach as a starting point. He first set up a new research avatar (Mani Cyberschreiber) and, as in the explorative study, declared his research interests in the avatar profile.³ He then only collected data with explicit consent: for each discussion, he first contacted the moderator to ask for his/her support and permission. At the beginning of a discussion, Berger introduced himself as a researcher, gave a short outline of his research purpose and asked for official permission of each resident present. He only collected data when he received everyone's permission. From this dataset, we draw on one example including text and visual material (recording and screenshots) which has been rendered anonymous. We use this example for an in-depth analysis of how the residents' interaction connects to the virtual setting where the discussion took place.

In addition, we draw on our own experience with *Second Life* (see Boellstorff 2008 and Boellstorff, et al. 2012 for an introduction to ethnographic studies in virtual worlds). Jucker and Locher both taught several classes on computer-mediated communication (CMC) in the past and integrated the experience of *Second Life* into their course designs. Two of these classes were recorded by Berger. In preparation, considerable time was spent learning how to navigate in *Second Life* and where best to explore for the aims of the classes. In order to receive an insider's perspective on how residents reflect their own communication, we also conducted five semi-structured interviews in 2010 (see Locher et al. 2015 for a detailed analysis of the interactions in this context).

In this paper we rely on an explorative methodology based on our own experience that we gained in the data collection process and on a close analysis of selected data extracts and still pictures taken from our data. We investigate the architectural

³ The personal profile of *Second Life* resident Mani Cyberschreiber gives his *Second Life* birthdate as June 27, 2010. And in the notes it explicitly says: "I'm a Master student in linguistics at the University of Zurich (Manuel Berger irl). I study patterns of communication in SL and I'm writing my final thesis on this topic. Should you have any questions/comments or should you be interested in my research, please contact me via IM or via email at *emailaddress*." (Berger 2012: 25).

affordances of a lecture theatre in *Second Life*. The analysis relies on a still picture of a lecture theatre as an illustrative case study of the specific ways in which architectural affordances of physical lecture theatres are recreated or ignored in this virtual world. In a similar way we investigate the spatial positionings of avatars, that is to say the way in which residents navigate their avatars in order to signal their interest in interaction with other avatars/residents. This analysis very much depends on the technical affordances that *Second Life* provided at the time of data recording. However, the analysis is not so much interested in the technical aspects of *Second Life*. These are likely to change in the course of time and they are likely to differ in minor or major respects by the time of publication of this article. But we are interested in the way in which users deal with the differences between physical life and virtual life and how they deal with (the limitations of) these affordances. Which aspects of spatial positioning are important for interaction and how do residents make use of the limited affordances in order to interact with other residents? In the last step of our analysis we explore the multi-faceted aspects of the setting of a discussion event and in particular the ways in which the residents present at this event use language to create virtual spaces.

We use the terms physical life and virtual life to refer to our everyday world on the one hand and the computer-generated world in a context such as *Second Life* on the other. However, we would like to stress that there is no clear distinction between the two because they are connected through the users. On the one hand, the users shape the virtual world in analogy or in contrast to physical life but in either case in reference to physical life. The fact that we can fly in *Second Life* is noteworthy and commented on, while the fact that houses are created is less noteworthy. In addition, the user in his/her bodily form experiences or 'is in touch' with the virtual world via the keyboard or microphone set as well as the visual feedback on the screen. In this sense, the material base of the networked computers forms the interface between the physical and virtual life. In the following analysis we will focus more on the similarities, analogies and differences between the two worlds and less on the slippery ground between them.

5. Interaction and architectural affordances

Creators of virtual worlds and builders within these worlds regularly draw on the physical world for inspiration. They take physical objects, rooms and even whole settings as models and adapt them in virtual space. Simply put, in virtual worlds three-dimensional space is virtually re-created. It is plausible to assume then that this parallel between virtual and physical settings influences the ways users interact within virtual settings. As we will argue in the following subsections, space and interaction are closely linked both in the physical world and in virtual worlds.

Constructed space in the form of buildings often provides purpose built rooms for specific forms of interaction to take place. Following Hausendorf and Schmitt (2013), we will use the term "interactional architecture" for such forms of constructed space. Relevant examples are not only purpose-built buildings and specific rooms, such as lecture theatres, churches, council halls, consultation rooms or doctors' offices, but also interior decoration and furniture that serves similar purposes, such as the arrangement of chairs around a table, which facilitates the interaction during a meal, or a ticket office

providing interactional affordances for the customer and the service provider. Interactional architecture facilitates, structures and flags specific forms of interaction as we will show in section 5.1.

But interaction itself is part of how interactional space is created. On the one hand, the positioning of avatars or bodies indicates who is available for interaction and what kind of interaction may take place. On the other hand, specific types of interaction discursively create interactional space with specific parameters by talking that space into being (Seedhouse 2004). Delivering a lecture outdoors, for instance, may discursively create a temporary lecture theatre or seminar room, and giving a sermon in a kitchen may turn the kitchen into a temporary church. We claim that this is true both in physical and in virtual life, but there are also some obvious and significant differences between the two. In section 5.2, we provide a close analysis of a lecture and moderated discussion and throw additional light on how interactional space is created in a virtual setting.

5.1 Interactional affordances of architecture

The term “interactional architecture” describes all those aspects of the architecture of rooms and buildings that facilitate interaction in general or specific forms of interaction even if they do not determine or restrict these forms (Hausendorf and Schmitt (2013: 3). A lecture theatre, for instance, facilitates the very specific form of interaction of a lecture but it does not prevent interactants from communicating in entirely unintended ways in this location. Architecture is here understood in a wide sense to include not only the shape of the building or the room itself but also the relevant furniture and all aspects of interior decoration and technical equipment (Hausendorf and Schmitt 2013: 3).

Hausendorf (2012: 43) argues that the architecture of a lecture hall, for instance, “can be analysed as an answer to genuine interactive problems, the solution to which constitutes the university lecture as a specific form of interaction.” He, therefore, speaks of an “archaeology of interaction” to describe the linguist’s analysis of the affordances of built space for specific forms of interaction. In his ground-breaking article he provides a scrupulously detailed and meticulous analysis of the opening moments of a university lecture. In this section, we want to compare two still lifes of lecture theatres, one in physical, one in virtual space, in order to see how Hausendorf’s analysis is transferable to virtual space and where it needs to be expanded to account for differences between physical and virtual space. In particular, we want to show that some of the affordances which in physical life are needed to facilitate and structure a particular form of interaction seem to serve a different purpose in virtual worlds. They are taken as iconic signs that flag the type of conversation that is taking place in this location.

Picture 1 illustrates a fairly typical lecture theatre in physical life. We can see a large audience of students whose gaze is mostly directed at a lecturer outside of the picture frame or at their notes. We can see that the ascending rows of chairs and tables are arranged in such a way that all the students in this very sizeable audience have a clear view of the lecturer and the screen and whatever else may take place in front of the lecture theatre. In this way, the room allows for the multi-faceted communicative acts that take place in it, which comprise much more than the words spoken by the lecturer. At the back of the room we can detect a window to an adjacent room with two data projectors that appear to be projecting to a screen in the field of vision of the audience.

The tables in front of the students serve as a surface for notebooks, writing pads and these days – but apparently not in this picture – for computer laptops, tablets, smart phones and other electronic communication devices. Thus, the members of the audience listen to the lecturer's words; they read texts projected to the board behind the lecturer; they consult books in front of them; and they write their own texts on their note pads.



Picture 1: Lecture theatre in physical life (<http://www.bildergalerie/gebaeude.html#>, © Universität Zürich; Frank Brüderli)

The entire room is clearly purpose built to facilitate this type of interaction. Tables, chairs, data projectors, screens and so on are its affordances designed to facilitate the form of communication for which the room was built. In this case even the lighting and the colour scheme of the walls and the benches were carefully selected to make it easy for the audience to concentrate. The room does not have any outside windows, and it is thus free from outside noise or visual distractions.

The architecture of this room not only facilitates a specific form of communication it also structures it by assigning specific communicative roles to the participants. The person standing in front of this lecture theatre is singled out by the architecture to have more privileged speaking rights than anybody else in the room. Only the lecturer can be seen and – through the audio system that we can assume to be part of the equipment of this room – heard by everybody. The members of the audience do not have such a privileged position. Depending on their actual location at the front or at the back of the room they may be seen by a smaller or larger number of all the other members of the audience. It takes an extra effort to afford speaking rights to a member of the audience. The room is so large that they have to be provided with a portable microphone in order to be heard by everybody else. And even if they stand up in order to contribute to a discussion, many of the other members of the audience can either not see them or have to uncomfortably turn around in their seats.

The virtual lectures that we encountered in *Second Life* share many similarities with the physical life lecture theatre in Picture 1 but there are also significant differences. We base our analysis here on a particular lecture from our data. As pointed out in Section 4, we do not have permission to reproduce a screen shot from this online lecture. Picture 2, therefore, provides a slightly simplified artist's impression of the situation. The avatars have been given uniform default shapes instead of their highly individual and personalized shapes. The name labels that typically appear above each avatar have been omitted, both in the interest of anonymization and of decluttering the picture. The texts on the screens have been simplified or rendered as generic texts.



Picture 2: Lecture theatre in virtual life (artist's impression with anonymized and standardized avatars, ©2015 Katrin Jucker)

The lecture theatre in Picture 2 provides seating for the audience, it has projection screens in the field of vision of the audience, and it has a place specially designed for the lecturer in the form of a green podium in front of one of the big background screens. The lecture takes place in a virtual outdoor location under a blue sky, in a square surrounded by a small wall. About fifteen seats are visible from this perspective, not all of which are occupied by avatars. The avatars in the audience assume a sitting position and their gaze is directed towards the lecturer, who faces them standing in front of a projection board. In this class the participants learn to write scripts that will animate objects in their virtual world. It must be remembered that the virtual world of *Second Life* is largely built by its own residents, and, therefore, residents, or rather their users, need the appropriate skills to

construct objects in this world. On Picture 2 a number of abstract objects (cubes, spheres, prisms) can be seen. These are the objects that the participants in this class are working on. Dotted lines indicate that an avatar is interacting with a specific object. They can be seen as visualizations of their users' activities. Similar technical indications of user activity and presence are typing avatar hands which indicate that its user is in the process of composing a message. When a user is listening or reading, the avatar does not actually have to be moved and might even "nod off" which is a system indicator that the user hasn't moved the avatar for a longer period of time and might even be absent from the computer.

The screens in the background provide texts that the participants need in order to follow the lecture. On the screen to the left, the participants can see a sample script which they have to adapt and modify for their own purposes. Debbie Cyberschreiber's own scripting window appears on the top left of the picture and is part of her user's computer screen. It is not part of the virtual lecture theatre. The screen on the right provides more information that the students need in order to follow the lecture. The audio channel is not used for any of the instructions. It plays some soothing background music. The interactional backbone of the lecture is a chat window (open chat) in which the lecturer issues his⁴ instructions. Depending on the chosen settings, it is only visible while it is being used for the interaction between the residents. Picture 2 captures a moment when it is not visible. It normally appears on the bottom left of the screen and, along with the window on the top left of the picture, is meant to be part of the user's computer screen rather than the architecture of the virtual life lecture theatre.

The lecture theatre in Picture 2, thus, imitates several aspects of a physical life lecture theatre but not all of them. It imitates elements that facilitate lecturing in physical life, such as the chairs for the seating comfort of the audience, and the visibility of the screens for all the members of the audience. And it also imitates the elements that structure the interaction. The positioning of the lecturer and the audience assigns clear speaking rights to everybody present. However, the elements that facilitate the interaction in physical life do not serve the same function in virtual life. It does not make any difference to the comfort of a resident whether his or her avatar assumes a sitting or a standing – or indeed a flying – position, and, obviously, it is not the avatars that are reading the text on the screens but their users sitting in front of their computers. By default the camera position changes as soon as the avatar sits down. As long as the avatar is standing or moving the camera normally adopts an overhead first person perspective. As soon as the avatar is seated, the user can navigate the camera in a 360-degree circle around the avatar and can zoom in on/out of the texts projected on the classroom screens. In this way the users disconnect their field of vision from that of their avatars and focus their attention to the discussion in the chat window, instant messaging windows, the audio channel or the projection screens. The avatars themselves lose some of their importance as a focus of attention but they reflect their user's activities. A dotted line from the avatar to a prism indicates that this prim is being edited, and a raised arm indicates that a new action is

⁴ The lecturer's avatar has a gender-neutral animal shape (represented in a more standardized humanoid form in Picture 2) but he has a name that suggests a male personality, and, therefore, we use the male pronoun to refer to this particular resident. Our choice of pronouns for other residents is based on similar principles. They do not refer to the user but to the projected identity of the resident/avatar.

being initiated with the prim. The users in front of their computers take part in an online lecture about scripting and they make their avatars behave in ways that imitate what they would be doing if this were a physical life lecture theatre.

Thus, some of the affordances in physical life become flags in the virtual context of *Second Life*. They do not facilitate a specific form of interaction but they function as strong signals to mark the communicative event that takes place in this environment as a lecture. The communicative activity is marked as a lecture to a significant extent through its spatial arrangement.

Other affordances of physical life lecture theatres that are, strictly speaking, unnecessary in virtual space, are simply not reproduced in virtual space. Physical lectures, for instance, almost exclusively take place indoors in a lecture theatre. This *Second Life* lecture, however, takes place in a virtual outdoors. There are no walls and there is no roof to protect the avatars from inclement weather, from outside noise or other distractions as these do not exist in *Second Life*. Similarly, the distance between the audience and the instructor in the virtual lecture is somewhat larger than it would be in physical life because the “audibility” of the lecturer and the limited space are not prevalent issues in *Second Life*. However, the audience needs to be within the range in which the instructor’s postings can be read (i.e. “heard”) but in this case this range seems to be larger than what we normally consider an easy distance for listening. In a physical life lecture theatre, the members of the audience typically sit closer to the lecturer, and they sit closer together. But the positioning of the members of the audience seems to be sufficient to allow the residents to follow the sample scripts and other instructions on the virtual screens behind the instructor, and – if they wish – members of the audience can still engage in chats through Instant Messaging, which are not publicly accessible. In fact, they can do this with any resident listed in their inventory even including the lecturer and not only with the person sitting right next to them. Instant Messaging is not restricted to the interactants whose avatars are in the vicinity.

Thus a close analysis of the differences between the situations depicted in Pictures 1 and 2 show that many of the affordances of a lecture theatre are recreated in the virtual reality of *Second Life*, where they may be interpreted as indexical for the evoked genres. They serve as flags for social situations and index an interactive frame. Goel et al. (2013) make a similar point in connection with a computer lab in a virtual world.

[A] computer lab can be designed in a virtual world, which has doors, computers, cables, and networking equipment just like a real-life lab. When in this space, an avatar realizes that the space is meant to be a lab, and that interacting with others in this space would likely entail activities associated with computer labs. Individuals in virtual worlds have an awareness of others sharing the same environment. (Goel et al. 2013: 269)

Table 1 gives an incomplete overview of some of the more salient affordances that we have identified in the two lecture theatres in Pictures 1 and 2. Projection screens are present in both situations. They provide essential information for the audience, and in this sense facilitate the lecture format in both worlds. At the same time, they structure the interaction and they serve as iconic signs that these rooms serve as lecture theatres. The special position for the lecturer and the seats for the audience have a similar structuring

function in that they assign clear speaking rights for this type of interaction. They also serve as clear signs that we are in a lecture theatre. In the physical life lecture theatre these elements clearly facilitate the delivery of a lecture. It would be difficult to address such a big audience without this kind of interactional architecture. In the virtual life lecture theatre, on the other hand, the iconic function seems to be much more important. The podium and the seats would not be needed to enable the lecture but they help to determine the speaking rights and to remind everybody that the activity carried out on these premises is a lecture. In the physical life lecture theatre the members of the audience sit in front of desks where they have books and note pads. These are typical for lecture theatres, in contrast to a movie theatre or a play house for instance. Thus they not only facilitate the complex activity type of a lecture but they also structure and flag it. In the *Second Life* lecture theatre, this facility is not provided. However, there are alternatives: The users have both a chat window for their communicative activities and an additional window for their note taking on their computer desktop (see the window in the top left corner of Picture 2), and the users are present in their own physicality, sitting in front of their computer at a desk where they can draw on the affordances of notepads or further electronic programs to take notes. Finally, the physical life lecture theatre is indoors and provides shelter from the weather and from outside distractions. This kind of shelter is not specific for lectures. It does not serve as an iconic sign for the specific type of interaction and it does not structure the interaction, except perhaps in the sense that it assures the audibility of the lecturer.

Affordance	Significance in physical life	Significance in virtual life
Projection screens	Flag Structure Facilitate	Flag Structure Facilitate
Podium for lecturer	Flag Structure Facilitate	Flag Structure
Seats for audience	Flag Structure Facilitate	Flag Structure
Note-taking facilities	Flag Structure Facilitate	none
Shelter	Facilitate	none

Table 1: Interactional architecture of a lecture theatre (selection of affordances)

Thus it is not really surprising that *Second Life* adopts architectural norms from physical life even if they are not needed as affordances. Their significance lies in the fact that they flag interactional possibilities, and they serve as orientation frames for the interactants who operate in these contexts. Users have a shared background awareness of activity types and spatial set-ups which they bring along from physical life. This background serves as an orientation frame or cultural script that can be drawn on in virtual space. Thus, the visual setting helps users perceive that they share a common setting including the kind of communication that they are likely to be involved in at that place.

5.2 Creating interactional space

The previous section took interactional architecture as a starting point. This spatial aspect is relevant not only in physical space as shown by Hausendorf and Schmitt (2013), but also in virtual space. In this section we want to take interaction as our starting point. Interaction itself is constitutive of creating interactional space, in particular for how interactional space is created on the spot. A sermon that takes place out in a clearing in the woods turns that clearing into a kind of makeshift church. A philosophical discussion taking place in the same clearing – whether physical or virtual – turns it into a seminar room. A specific activity type has an influence on how the architecture of a setting is employed to create interactional space.

For our analysis, we focus on a specific discussion event from Berger's (2012) dataset, specified as "data 8" in Berger's study. In an event notice published a week prior to the event, it was announced as "lecture and moderated discussion on the ontological argument for the existence of God". In that notice beginning and ending times were also scheduled and the location was defined. Voice over IP was technically disabled at the location so the group discussion took place in open chat only. The event took place on a weekly basis with most participants joining in regularly. During the event, a maximum of 32 residents were present. Berger had gained permission to collect data, including video data, and his avatar was present. We will have a closer look at four stages of the discussion: (1) arriving, greeting and avatar positioning, (2) opening the discussion, (3) keeping the discussion going and (4) ending the discussion. We focus on how interaction itself creates (or at least adds to the creation of) what we would like to call "functional space", i.e. space in which co-presence and co-attention is established. We therefore draw on the findings from section 5.1, but focus particularly on the role of actual interaction in the process of creating space.

*Arriving, greeting, avatar positioning, [17:45] – [18:05]*⁵

When residents arrive at a new location, their presence is instantly visible in two ways: the avatars appear as virtual bodies and a green dot appears on a mini map. In contrast to classic chat rooms (see e.g. Crystal 2006: 160-61; Jenks and Firth 2013: 222-227), there is however no notice in the chat window that somebody new is available for discussion. In the events we analysed, already present and newly arriving residents greeted each other almost immediately after a new arrival. Excerpt 1 shows such a greeting scene from our discussion. It occurs before the moderator (Jennifer) opened the discussion:

Excerpt 1⁶

- 1 [17:54] Michael: Hi Jennifer
- 2 [17:54] Jessica: oopsy hey Jennifer...everyone...giggles....sorry I kind
- 3 of need to dash back to where I was....oh I am cold and frozen in reallife

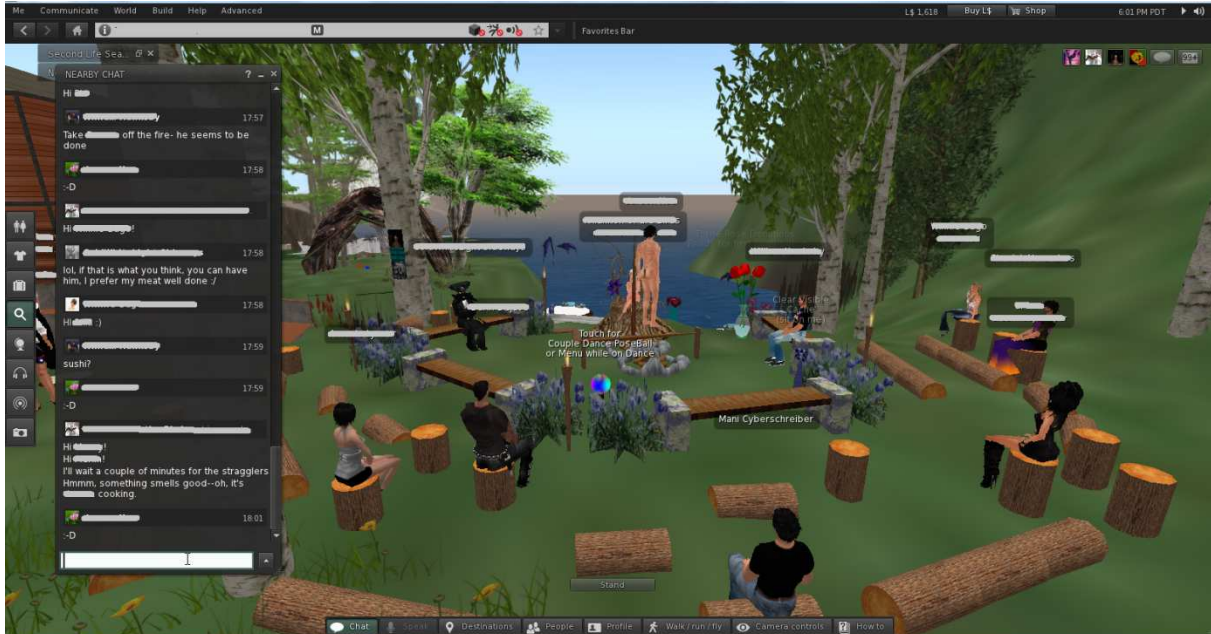
⁵ Information in square brackets refers to *Second Life* time which is equal to Pacific time. [17:45] for instance means 5.45 pm in *Second Life* time.

⁶ We anonymised the usernames of the participants using the most popular US baby names from 1980: http://www.babycenter.com/0_100-most-popular-baby-names-of-1980_1738068.bc. The gender distinction is based on the avatars: female avatars were given female first names, male avatars male first names. Usernames usually consist of a first and a last name, e.g. Mani Cyberschreiber. We decided to replace them with first names only.

4 [17:54] Jessica: just escaped my freezer giggles
 5 [17:54] Jennifer: Well, thanks for coming and hb!
 6 [17:55] Jennifer: Hi Christopher!
 7 [17:56] Christopher: Hi Jennifer
 8 [17:57] Christopher: Take Jason off the fire- he seems to be done
 9 [17:58] Jason: :-D
 10 [17:58] Jennifer: Hi Amanda!
 11 [17:58] David: lol, if that is what you think, you can have
 12 him, I prefer my meat well done :/
 13 [17:58] Amanda: HI Jennifer:)
 14 [17:59] Christopher: sushi?
 15 [17:59] Jason: :-D
 (Berger 2012, Data 8)

Before the discussion officially begins, presence is established and negotiated. Christopher, Michael and Amanda, who newly arrived, are greeted by the moderator (lines 6, 10) and/or greet her as well (lines 1, 7, 13). This exchange of greetings actively involves new residents in a minimal adjacency pair and indicates that the people behind the avatars are available for interaction and not afk (away from keyboard). At the same time, Jessica seems to have teleported wrongly to this location, excuses herself (lines 2-4) and is greeted in turn by the moderator (line 5). In this excerpt, all users are greeted by name, e.g. “Hi Jennifer” (line 1). In a larger group, it might be almost impossible to greet every user by name; here in this smaller group, however, this practice may result in establishing a personal bond that binds new residents into the discussion.

Furthermore, the greeting sequences also signal a resident’s presence in the chat window. Greeting helps to overcome the inherent gap between avatars and their language output in the written chat communication within *Second Life*. A resident’s avatar and his or her language output are mainly linked via the username. The username appears on top of an avatar (see Screenshot 1 below) as well as in the chat window (see Excerpt 1). However, in order to first “appear” or “be heard” in the chat window, a resident has to be involved in communication. The greeting exchange transfers the visual presence of a resident’s avatar to the otherwise detached chat window and thus establishes this resident as an active participant of the discussion. This is the more important as voice over IP was disabled so that the discussion took place exclusively in the chat window.



Screenshot 1: Screenshot from the beginning of the discussion (Berger 2012, Data 8)⁷

In a second step, the residents positioned their bodies within the discussion setting. Screenshot 1 shows the setting at the beginning of Excerpt 1 above. The seating structure itself already gives a strong indication as to how residents should position their avatars: the tree stumps and logs build a circle that centers on a fireplace close to where the moderator sits on a slightly larger and thus more elevated log (naked avatar not on but behind the fireplace; see also Screenshot 2 for better visibility). Additionally, the log seats are programmed in such a way that avatars sitting on them automatically face towards the fireplace. Thus they provide the setting for the maintenance of an F-formation system (in the sense of Kendon 1990: 212, and Bennerstedt and Ivarsson 2010: 207), i.e. a system between individuals that share – for a certain amount of time – a joint focus. Furthermore, the setting alludes both to a campfire setting (more casual) as well as to a seminar room or a lecture theatre (more formal). As visible in Screenshot 1, most avatars are already sitting and face the system-given focus of the fireplace. Thus, by activating the log seats, they adhere to the expectations of a physical setting of a social gathering. By discursively orienting to one avatar as the moderator, the round turns into a chaired discussion round, where the moderator is seated equally in the circle.

One avatar, however, counteracts these expectations by standing on top of a fireplace (see middle of Screenshot 1). His position provokes immediate reactions, which are included in Excerpt 1. Christopher and David make playful comments about Jason's position (lines 8, 11, 12, 14). More generally, these residents comment on the fact that Jason is in an odd 'physical' position. He eventually moves to one of the seats and sits down facing the fireplace. Only then he conforms to how the other residents are seated.

While in physical settings, facing each other facilitates the interaction (best audibility), this is not the case in virtual settings. It does not matter for the quality of the interaction if interactants face each other or not, if they are standing far apart or back to

⁷ In this group, the moderator as well as some of her followers usually appeared with naked avatars.

back as long as they are within a certain programmed hearing range. Nevertheless, positioning a body or an avatar in a certain way raises expectations as to whether and how somebody is available for an interaction (Goffman 1964; Mondada 2009, 2013). This is particularly relevant in our dataset. In face-to-face communication in physical life, e.g. in a seminar at university, physical co-location is necessary and a face-to-face orientation of speaker and addressee generally facilitates communication. In computer-mediated settings, the necessary pre-requisite for interaction is a common platform that allows communication and – in the case of synchronous interaction – that everyone is online at the same time. In *Second Life* in general, and in particular in the case of the virtual discussion just introduced, co-presence of the avatars is made relevant through the programming of the world. Open chat can only be followed within a certain “hearing” distance (see section 2). Beyond that, the positioning of avatars has no impact on their access to or participation in open chat, especially since that interaction takes place in a detached chat window.

The positioning of avatars, therefore, turns what is an important aspect of communication in physical life into a visual sign of whether the user is available and willing to interact.

One feature is the support of many-to-many interactions in the virtual space such that when an activity is underway, the space allows a person to discern whether another is available for interaction based on what her avatar is doing (...). For example, an avatar walking toward you may signal that the person represented by the avatar wishes to interact with you. (Goel et al. 2013: 269)

Thus, positioning avatars in a pre-given structure is used to signal that all avatars present are in one way or another available for interaction. This flagging is further supported through the greeting sequences described above. Through these mechanisms, users establish themselves as co-present in a shared interactional space. By activating the script that keeps their avatars in a stable position facing each other, the residents simply show their availability for interaction, their involvement and their recognition of the communicative situation. The spatial structures in combination with the positioning of the avatars set the ground for joint attention.

Opening the discussion, [18:05] – [18:20]

Once co-presence and joint attention have been established, in theory any type of interaction could be launched. As mentioned above, our discussion was announced as a “lecture and moderated discussion”. This denotation shapes participants’ expectations about the general character of the event: it will consist of a monologic part in which one or a few people talk followed by a dialogic part in which the floor opens to more or all participants. Furthermore, the discussion was part of a series of events that took place every week. It attracted a regular crowd who already shared common ground on how the lecture and the discussion would take place. Still, there are a number of different ways, in which lectures and discussions can be conducted. These varieties can be negotiated, especially when new residents participate for the first time. The moderator needs to transition well from the more playful stage of arrival, positioning and greeting to a

focused discussion. She has to channel the joint attention created in the beginning onto focused interaction.

In our example, the moderator introduced the discussion through an introductory monologue. This part was heavily scripted and clearly set apart from both the playful arrival stage as well as from the discussion in which all participants could contribute. The moderator prepared the respective turns in advance and posted them turn by turn. During these posts interrupting turns by other residents were explicitly banned (see lines 1-2 in Excerpt 2 below). Only after the final statement “The floor is now open for discussion.” at [18:20], the moderator opened the floor for other contributions. During the monologue, the colour of the moderator’s turns changed to green which set those turns also visually apart. In terms of content, the introductory monologue consisted of two blocks: first, the moderator set the rules for how to interact, and second, she introduced the topic to set the grounds for the discussion. In the following, we will have a closer look at the rules.

Excerpt 2

- | | | |
|----|---------|---|
| 1 | [18:05] | Jennifer: PLEASE HOLD YOUR COMMENTS AND |
| 2 | | QUESTIONS UNTIL AFTER I'M DONE. |
| 3 | [18:06] | Jennifer: Please treat each other with respect, as we are all |
| 4 | | seekers after the truth. |
| 5 | [18:06] | Jennifer: No ad hominem arguments and keep personalities |
| 6 | | to a minimum. |
| 7 | [18:06] | Jennifer: If you have a lot to say, by all means say it, but |
| 8 | | intersperse it throughout the discussion, so everyone feels they have an |
| 9 | | equal right to participate. |
| 10 | [18:06] | Jennifer: This is a philosophical dialogue, so please avoid |
| 11 | | being confrontational. |
| 12 | [18:06] | Jennifer: Please listen and respond to others, as this is a |
| 13 | | dialogue, not a forum for preaching or ranting. |
| 14 | [18:07] | Jennifer: If you have an ideology, by all means express it, |
| 15 | | but be prepared to talk about it and consider criticisms. |
| 16 | [18:07] | Jennifer: If you have any trouble with anyone, IM me, i |
| 17 | | will handle it, no matter who it is. |
| 18 | [18:07] | Jennifer: Please do not rez any object that is offered you; |
| 19 | | we have had griefers in the past, and i don't want to have to turn off |
| 20 | | scripts. |
| 21 | [18:07] | Jennifer: The lecture and discussion will be in text, as that |
| 22 | | allows tiime for reflection, the ability to keep track of multiple threads, |
| 23 | | and to scroll up to see what you missed. (You can also go to the |
| 24 | | bathroom and not miss anything.) |
| 25 | [18:07] | Jennifer: Thank you. |

(Berger 2012, Data 8)

Jennifer mainly dwells on communicative rules such as having respect for other contributions (lines 3-4) but also gives directions as to which objects are allowed in that

space (lines 18-20) and how to use the communicative channels at disposition at the setting (lines 21 – 24). She posted the exact same rules at every of her discussions.

For settings in physical life, Hausendorf and Schmitt (2013) argue that they have been gradually adapted to the communicative needs of the activity types present, for example a sanctuary is adapted to sermon practices or a lecture hall is adapted to the one-to-many communication in lectures. Furthermore, these settings serve as orientation frames that are linked to long-established cultural scripts for how to interact within those spaces. This is similar in our case: Jennifer's events took place weekly at the same setting. Regular participants thus establish cultural scripts of how the lectures and discussions usually take place. Furthermore, residents can draw on their experiences in lectures and discussions and rely on respective parameters for how to interact in the virtual context.

Still, the moderator dedicated two minutes to posting her discussion rules and repeated them at every of her events. We want to focus on two main aspects accounting for the rule repetition. First, the rule repetition helps Jennifer but also other residents to deal with disruptive behavior. Line 19, for instance, indicates that they have had experience with such behavior in the past. Furthermore, Jennifer explains why the discussion takes place in chat and not in voice over IP (lines 21-24). Residents may have questioned that mode at some stage so Jennifer anticipates any re-negotiation of that fact. Second, the rule repetition helps Jennifer to qualify her event as a particular activity type, a philosophical discussion (line 10). A discussion in *Second Life* cannot rely on a long-established tradition as lectures at university, for instance. Participants have an idea of how a lecture or a discussion would take place in physical life. By announcing her event as a lecture and moderated discussion, Jennifer actively draws on those cultural scripts. While participants' concepts may coincide in the most basic parameters, they however bring along different conceptualizations of the activity types "lecture" and "discussion" which are dependent on their cultural background, social layer and other demographic variables. Furthermore, participants are likely to have participated in different online forums and chat rooms where different rules and regulations may have applied. The explicit rules consolidate the parameters that Jennifer wants for her event to apply.

Flagging involvement through addressing and avatar positioning as shown above as well as explicit rules are crucial in *Second Life* because presence in virtual life is more flexible than in physical life. In virtual life, residents can come and go easily. They can simply teleport into or out of a setting or log in or out of *Second Life*. In the discussion events that we analysed it was common that residents appeared when a discussion was already underway, or that they left when the discussion was still in progress. Moreover, the presence of a resident does not necessarily mean that his or her user is also present (i.e. sitting at his or her computer and not on the way to the toilet or fridge). The interactional architecture in combination with explicit rules provide a strong frame for focused interaction. The positioning of avatars in combination with the announcement and performance of an activity type create functional space and thus, in our example, can turn a virtual clearing of the woods into a seminar room in which users jointly focus on a philosophical discussion.

Keeping the discussion going, [18:20] – [19:00]

Keeping a chat-based discussion going in *Second Life* has a number of challenges. Excerpt 3 and Screenshot 2 provide an insight into the middle of the discussion.

Excerpt 3

1 [18:33] Sarah: God is just dog spelled backwards
2 [18:34] Jennifer: Well, it's a crucial premise in it, Michael; that's all
3 I'm saying at this point
4 [18:34] Jennifer: Hi Joseph!
5 [18:34] Sarah: No such thing as dogs . . woof woof
6 [18:34] Matthew: mon dieu !
7 [18:34] Joseph: hi
8 [18:34] Michael: Am I greater than a bee? I'm not . both of us have
9 unique capabilities
10 [18:34] Jason: So lets be with Goddess and be To Get Her :-)
11 [18:34] Christopher: we have to determine the existence of god logically
12 becuase what would we need to have in the way of empirical data to
13 prove he rexists?
14 [18:34] Jennifer: Hi Daniel!
15 [18:34] Jennifer: Hi Brian!
16 [18:35] Melissa: No one is capable of proving that something does NOT
17 exist.. it is up in the air if we can prove ... I exist..lol
18 [18:35] Jennifer: Michael, well, there is a vagueness in the notion
19 of greater--all we need for the argument is that we assume that an
20 existing thing is greater than a non existing thing. So not a bee, but a
21 unicorn. Are you greater than a unicorn
22 [18:35] Jennifer: Hi Justin!
23 [18:36] Christopher: if a unicorn does not exist it is nothing- how can you
24 co0mpare somethi8ng with nothing?

(Berger 2012, Data 8)

A major challenge of such chat-based discussions is disrupted turn-adjacency. Lines 4, 7, 14, 15 and 22 for instance are greetings to or from newly arrived residents. These greetings appear in the same chat window as the discussion posts. As the turns are posted chronologically, the greetings interrupt the adjacency of discussion contributions. A further challenge is the restricted use of body language, in particular eye contact. While body language is available in *Second Life*, it is circumstantial to apply gestures or eye contact effectively during a heated discussion. Residents only rarely used it while discussing. They compensated for this lack of addressing via eye contact within the chat window by addressing the other resident by name in their turn (e.g. in line 18) or by relying on the logical connection of individual turns.⁸

The setting in combination with avatar positioning serves as a visual anchor for the complex interactions in the chat window. Screenshot 2 shows how the avatars are positioned similarly as at the beginning of the discussion. The moderator's naked avatar is still sitting on the same log close to the fireplace. The other avatars are still positioned

⁸ For a more detailed discussion, see Berger 2012.

in a circle around the fireplace, facing each other. Most of the avatars are seated and have thus activated the script entailed in the log seats although that would not be necessary in the virtual setting since they do not get physically tired. The standing avatars would have had the option of facing a different direction but they all align with the default of facing the moderator. In fact, most avatars remain unmoved during the entire time of the discussion. By conforming their avatars within the circular formation residents signal that they are aware of each other's presence and uphold joint attention. Also, they flag their joint purpose of taking part in a focused discussion.



Screenshot 2: Screenshot taken of the seminar in progress (Berger 2012, Data 8)

Ending the discussion, [19:00] – [19:15]

The official ending of the discussion was scheduled at [19:00]. Excerpt 4 shows what happened right before and after that moment:

Excerpt 4

- 1 [18:59] Melissa: We could all be in a simulation.
- 2 [18:59] Melissa: a Linden Lab gone ballistic
- 3 [18:59] James: we are Melissa
- 4 [18:59] Matthew: I want a better simulation
- 5 [19:00] Melissa: *nods*.
- 6 [19:00] Michael: umm - Melissa - we are :-)
- 7 [19:00] Jennifer: Melissa, you should come to my Descartes' class,
- 8 or Origen's, God is many people's way out of the "are we in a simulation?
- 9 dilemma."
- 10 [19:00] Melissa: than make a better one Matthew
- 11 [19:00] Jennifer: ANNOUNCEMENT: WE ARE AT THE END
- 12 OF THE FORMAL PART OF OUR DISCUSSION. FEEL FREE TO

13 TALK ON ANY TOPIC NOW. DONATIONS SHOW THANKS AND
14 HELP PAY THE RENT; THEY ARE GREATLY APPRECIATED.
15 THIS IS A PRIVATE ENDEAVOR. TIPS HELP KEEP THE
16 LECTURES GOING. THANK YOU ALL FOR COMING. YOU WERE
17 AN AWESOME CROWD!
18 [19:00] Joshua: a square still has four sides in sl even though i cant touch
19 them ,
20 [19:00] ∴ EM ∴ 3 Rose Donations (Gen3)p: David
21 contributes and gets a smile and happy nod from the staff! Thanks!!!
22 David
23 [19:00] Sarah rats . . it's the end of the world . . oh well new world . .
24 . loading
25 [19:00] Location Venue Tip Jar: Robert tips Location 100
26 L, HUZZAH to the tipper !!
27 [19:00] Location Venue Tip Jar: Thank You Very Much For Your Support
28 Robert !!
29 [19:01] ∴ EM ∴ 3 Rose Donations (Gen3)p: Joshua contributes and gets a
30 smile and happy nod from the staff! Thanks!!! Joshua
31 [19:01] ∴ EM ∴ 3 Rose Donations (Gen3)p: Robert contributes and gets
32 a smile and happy nod from the staff! Thanks!!! Robert
33 [19:01] Rhiannon of the Birds: THANK YOU, ROBERT, JOSHUA!
34 [19:01] Rhiannon of the Birds: THANK YOU DAVID!
35 [19:02] ∴ EM ∴ 3 Rose Donations (Gen3)p: John contributes and
36 gets a smile and happy nod from the staff! Thanks!!! John
37 [19:02] Rhiannon of the Birds: THANK YOU AGAIN, DAVID!
38 [19:02] Rhiannon of the Birds: AND THANK YOU, JOHN!

(Berger 2012, Data 8)

The central post of Excerpt 4 is in lines 11-17. The moderator here officially closes the discussion. This statement is interesting in a number of ways. First, Jennifer makes a distinction between “the formal part of our discussion” (line 12) that has just ended, and by implication an informal part. This refers back to the introduction in which topic and rules were introduced. As introduced, the discussion is an on-topic discussion with explicit rules and supervised by the moderator. This interactional space is now officially ended. Second, Jennifer’s post visually cuts the discussion in two parts. It is posted in capital letters, which is unusual for the discussion, especially in this length. And third, Jennifer’s post leads to a two-minute interruption that stops the flow of the discussion. While Joshua’s post (lines 18-19) is a remnant of the discussion before, the chat window is afterwards crammed by system-generated messages that confirm donations made (lines 20-32, 35-37) and posts to thank for the donations (lines 33-34, 38-39).

After Excerpt 4, one resident posted a longer turn that led back to the discussion topic and intended to rekindle the discussion. However, after the official ending statement and during the two-minute discussion gap, many avatars changed from a seated to a standing position, posted goodbyes and disappeared from the screen. Thus, the relatively

stable F-formation, which was established before the discussion started and upheld during the discussion, also dissolved.

6. Conclusions

In this paper we discussed how space can flag interactional expectations in the physical world as well as in the virtual world *Second Life* and how this functional space is nevertheless discursively created in the process of communication. We explored the affordances that allow or demand focused interaction on the platform. In particular, we explored how physical settings such as a lecture theatre or a seminar room are recreated in virtual space along with affordances that no longer facilitate but rather flag interaction. These settings serve as orientation frames. They activate cultural scripts that indicate what kind of interaction or what activity type is likely to take place. We then illustrated how interactional space is created within a specific setting. Users for instance sit their avatars down and make them face each other. Thus users flag co-presence, joint attention and their joint commitment of having a focused discussion with one another. However, it is only through actual interaction that a specific activity type is eventually enacted and that the visual set-up is made relevant.

On a more general level, our investigation has revealed the limits of our understanding of the interdependence between space and interaction. It has become apparent how architectural space in physical life provides affordances for specific types of communication and how spaces can be created communicatively through interaction. Research on this interdependence has only just started and a lot of work still needs to be done. Space in virtual life, such as *Second Life*, imitates many aspects of space in physical life, but some of the affordances of physical life which enable specific forms of communication turn into flags in virtual contexts. They are – strictly speaking – not needed to enable communication but they serve as indicators or frames of the specific type of communication that is taking place. The comparison of physical and virtual life highlights the double nature of such features as both affordances and flags, and it underlines the importance of further research into the interaction between space and communication.

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